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Redundancy Analysis of Rorschach and MMPI
Scores for Female College Students*

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Introduction

Incremental validity has been defined as an increment in predictive efficiency provided by additional data (Sechrest, 1963). Studies investigating the incremental validity of personality data as interpreted by judges have found that little additional information is generated subsequent to the initial data source. This phenomenon occurs regardless of the particular assessment techniques used; e.g., Rorschach, TAT, MMPI, SCT (Golden, 1964; Kostlan, 1954; Sines, 1959; Winch & More, 1950). Since these studies do not separate test data from clinical judgment, the absence of incremental validity may be an artifact of clinical judgment. Analysis of overlap or redundancy of scorable data contained in separate instruments would clarify this issue.

Only one study has directly compared Rorschach and MMPI scores from college students. Blanton and Landsman (1954) used a group Rorschach and found positive but uniformly low correlations with the MMPI. Psychiatric patients have been compared on the two measures (Williams & Lawrence, 1954). Again few significant intertest correlations were obtained and factor analysis suggested an inverse relationship between the two measures. There have been many separate factor analytic studies of the Rorschach and the MMPI, but these studies cannot provide evidence of incremental validity.

Finally, there have been 49 studies comparing selected contents of the Rorschach and MMPI in a hypothesis-testing format or using case studies as examples. Appendix A lists these studies.

The purposes of the present study were to (a) Examine the interrelationships between Rorschach scores/ratios and MMPI scales; (b) Integrate the results of these analyses with existing literature.

Procedure

Ninety-five female college students were administered individual Rorschachs and completed the MMPI. Klopfer scoring was done for location categories, for major determinant categories, for content, for Popular responses, and for number of additional responses. MMPI records were scored for the standard validity and clinical scales. Table 1 presents the categories scored for both measures. The relationships between the two instruments were examined using correlational analysis, factor analysis, and redundancy analysis. The latter procedure provides a quantitative index of the overlap of the two domains in terms of the major dimensions of each.

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Results

1. Table 1 reports means and standard deviations for the Rorschach and the MMPI.
 - A. The Rorschach profile is as expected for college students with a mean R of 26.94, M=Sum C, M (3.49), FM (4.04), F (7.69), W% (32), D% (46), and P (3.84). The mean CF (2.6) exceeds the mean FC (1.55) as expected in this generation. However, the mean cF plus Fc (2.63) and m(1.82) together with the mean number of An (1.29) do suggest the effects of life stress.
 - B. The MMPI profile is essentially normal with a range of mean scores on clinical scales from 48.02 (Mf) to 56.70 (Ma). The two highest mean scores Pd (56.06) and Ma (56.70) and the elevated standard deviation for Ma (11.81) are typical of college students. The MMPI corroborates the Rorschach description of a normal sample.
2. Table 2 presents correlations between Rorschach and MMPI variables.*
 - A. These Rorschach-MMPI correlations are of very low magnitude. The number of significant correlations (24 of 312) barely exceeds chance expectations.
 - B. The significant intercorrelations are concentrated in a pattern that exposes the minimal psychopathology in the sample. Significant correlations (N=14) are found between Rorschach scores and MMPI Hs, D, Hy, and Pa while one or no significant correlations occur with Pd, Mf, Pt, Sc, and Ma (N=3). The patterning of significant correlations (N=7) between MMPI validity scales and Rorschach scores describes the distress that is present in this sample. Elevation on the MMPI F scale is significantly correlated with shading (cF, Fc), achromatic color (all C'), and animal detail (Ad). The L scale elevations (N=2) are associated with very low frequency Rorschach determinants (KF, K and c) and are consequently not readily interpretable. The inverse relationship between numbers of additional Rorschach responses (ADD) and K is consistent with association to elevations in D and Mf. This pattern of Rorschach-MMPI relationships suggests that indications of distress are psychoneurotic rather than psychotic or characterological in nature.
 - C. All intercorrelations are of very low magnitude, consistent in expected directions, and occur within a context of paucity. These intercorrelations describe a population that is essentially normal with a minimum of psychopathology.
3. Table 3 presents correlations between Rorschach ratios and MMPI variables.
 - A. Three of the four significant intercorrelations occur between H + A/Hd + Ad and Pd, Mf, and Pa. The use of more human and animal detail in Rorschach responses is associated with higher Pd and Pa scores and

* Si is omitted from Table 2 due to the small N (N=27). Three significant Si correlations with Rorschach variables were obtained: .48 ($p < .01$) with FK, .46 ($p < .02$) with P, -.37 ($p < .06$) with S.

lower Mf scores. The fourth significant Rorschach-MMPI correlation is between M: Sum C and Pd. Lower M scores are associated with elevations on Pd. These findings are consistent with expectations.

4. Several redundancy analyses were completed. No significant Rorschach-MMPI relationships were found. The large number of variables relative to sample size may have prevented detection of any significant relationships.
5. Principal component factor analyses with varimax rotations were done for Rorschach and MMPI data separately. The resultant factors appeared to be sample-specific.

General Comments

1. These findings of few Rorschach-MMPI relationships and no relationships of any substantial magnitude are consistent with the Blanton and Landsman (1954) group Rorschach-MMPI study. Blanton and Landsman found some method variance but the overlap was small and it was concluded that the Rorschach and MMPI had different functions.
2. The present findings are also consistent with previous studies indicating that the intercorrelations between tests are very low. It is concluded that the Rorschach and the MMPI do not measure the same variable in a normal population of college students. Since these tests are independent sources of information, they have the potential for providing incremental validity. In the absence of additional information, however, a strong conclusion is not possible from this study.

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Table 1

Rorschach and MMPI Variables with Means and Standard Deviations
for 94 Female College Students

<u>Rorschach</u>	<u>Mean</u>	<u>S.D.</u>	<u>MMPI</u>	<u>Mean</u>	<u>S.D.</u>
R	26.94	11.64	L	46.83	5.63
M	3.49	2.44	F	51.30	6.07
FM	4.04	2.56	K	56.23	6.79
m	1.82	2.09	Hs	50.01	6.87
KF, K	0.39	0.66	D	49.87	8.61
FK	0.76	1.18	Hy	54.56	6.76
F	7.69	5.11	Pd	56.06	8.92
cF, Fc	2.63	2.56	Mf	48.02	8.96
c	0.04	0.20	Pa	55.84	8.86
C', C'F, FC'	1.19	1.47	Pt	55.50	8.46
F/C, F↔C, FC	1.55	1.75	Sc	55.81	8.14
C/F, C↔F, CF	2.60	1.94	Ma	56.70	11.81
Cn, Cdes, Csym, C	0.73	1.16	Si (N=27)	49.93	9.11
Sum C	3.66	2.91			
P	3.84	1.76			
H	3.54	2.62			
A	9.03	3.77			
W(W)	8.79	4.47			
D	12.35	7.27			
Dd(dr, de, di, dd)	1.06	1.84			
S	1.33	2.17			
Hd	0.98	1.76			
Ad	0.82	1.26			
Add	1.64	2.55			
Obj	2.80	2.47			
An	1.29	1.43			

Rorschach Ratios

M : Sum C

H + A : Hd + Ad

FM + m : Fc + c + C'

F/R

$\frac{FK + F + Fc}{R}$

$\frac{A + Ad}{R}$

Table 2

Correlations Between Rorschach and MMPI Variables for 94 Female College Students¹

Rorschach	MMPI											
	L	F	K	Hs	D	Hy	Pd	Mf	Pa	Pt	Sc	Ma
R	-.00	.16	.09	.19	-.04	.20*	.13	.02	.09	-.05	.06	-.00
M	-.04	-.00	.12	.09	-.18	.08	.04	-.09	-.10	-.04	-.02	.08
FM	.17	.03	.18	.20	-.02	.27**	.08	.00	.19	-.06	-.04	.00
m	-.08	-.05	.05	.08	.06	.09	.07	-.08	-.09	-.04	-.07	-.18
KF, K	-.21*	-.06	.00	-.05	-.15	-.06	.11	.03	-.08	-.05	-.03	.10
FK	-.05	-.03	-.16	-.06	.13	-.06	-.09	-.06	-.11	.05	-.01	.17
F	-.03	.11	-.01	-.00	-.12	.08	-.02	.16	-.02	-.13	-.02	.07
cF, Fc	.02	.28**	.02	.19	.20*	.16	.19	.01	.23*	.07	.15	-.03
c	.33**	.13	-.06	.20*	.11	.14	-.04	.01	.26**	.03	.07	.02
all C'	.14	.27**	-.02	.18	.06	.15	.11	-.05	.23*	.20*	.30**	.03
all FC	-.18	.11	.02	.05	-.01	-.00	.13	-.06	.08	-.04	.11	.01
all CF	.05	-.04	.18	.26**	.01	.18	.14	-.02	.09	-.02	-.02	-.12
all C	.05	.17	.09	.06	-.14	-.05	.13	.07	-.04	.09	.09	.15
Sum C	.11	.05	.16	.28**	.00	.12	.12	.00	.02	.07	.05	-.11
P	-.00	-.09	.10	.08	-.07	.20*	.14	.18	-.09	.15	-.17	.12
H	-.07	.02	.08	.10	-.15	.14	.05	-.10	-.08	-.02	.02	.10
A	.01	.06	.08	.05	-.13	.13	.14	.07	.10	-.19	-.02	.05
W	-.08	.12	.04	.06	-.05	.04	.11	-.05	.02	-.05	.15	.08
D	-.02	.06	.14	.15	-.08	.17	.18	.09	-.03	-.05	.02	.02
d	-.12	.13	-.01	.06	.08	-.05	-.04	.16	.07	-.03	.00	-.01
S	.07	-.06	-.00	-.02	-.09	.03	-.07	.15	-.01	-.11	-.12	.04
Hd	.09	.04	-.12	-.04	-.11	.02	-.09	.15	-.02	-.06	-.01	.06
Ad	.04	.22*	-.09	.08	.24**	.06	-.06	.22*	.07	.04	-.03	-.16
Add	-.02	.11	-.25**	-.02	-.01	-.03	.11	-.12	.22*	.06	-.03	.14
Obj	-.01	-.01	.11	.11	.02	.00	.02	.12	-.10	-.02	-.04	-.07
An	-.03	.23*	.09	.15	.21*	.13	.15	-.11	.21*	.14	.07	-.14

* <.05

** <.01

¹ Decimals are omitted.

Table 3

Correlations Between Rorschach Ratios and MMPI Variables for 94 Female College Students¹

<u>Rorschach</u>	<u>N</u>	<u>MMPI</u>											
		L	F	K	Hs	D	Hy	Pd	Mf	Pa	Pt	Sc	Ma
M : Sum C	87	-08	01	-03	-15	-03	-07	-25*	09	01	-12	-13	-05
$\frac{H + A}{Hd + Ad}$	54	-07	05	08	19	12	25	38**	-32*	27*	20	16	06
$\frac{FM + m}{Fc + c + C'}$	81	-14	-15	-05	-12	-09	-05	-03	-01	-20	-05	-06	18
F/R	94	03	-00	-11	-15	-07	-05	-19	19	-11	-14	-11	05
$\frac{FK + F + Fc}{R}$	94	09	08	-16	-12	08	-03	-14	16	-06	-09	-06	-01
$\frac{A + Ad}{R}$	94	03	-06	-02	-09	01	-10	-08	20	04	-14	-13	00

* <.05

** <.01

¹ Decimals are omitted.

Appendix A

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